

Western's monthly energy efficiency and renewable energy newsletter dedicated to customer activities and sharing information on energy services.

'Littlest User' competition lowers participants' energy bills

In this corner, the Watt Watchers, energy-conscious member-consumers from Wright-Hennepin Cooperative Electric Association (WHE). In this corner, the MiniMizers, Lake Region Electric Cooperative's team of energy sippers. Which team will use the least amount of electricity during a hot, humid Minnesota summer? Which family will prevail as the "Littlest User"?

The "Littlest User" contest challenged six ordinary families from each co-op to see which team could reduce its energy use the most from April 1 to July 31 compared to the same time frame last year. The prize of a one-month supply of free electricity ensured that the competition would be cut-throat. "Our contestants seemed to be extremely competitive," acknowledged WHE Communications Specialist Lindsay Scherer in an interview



The Watt Watchers, Wright-Hennepin's "Littlest User" contestants, gather for a team dinner before the big competition begins. MyMeter, the Kill-a-Watt and a thermal leak detector helped contestants monitor and reduce their energy use. (Photo by Wright-Hennepin Cooperative Electric Association)

with Basin Electric Cooperative's Basin Today magazine. "Some even went without air conditioning on hot days or refrained from using light when possible."

Competitive instincts aside, the utilities' goal for the contest was to show participants how much energy can be saved by developing simple habits. "We wanted to show that cutting energy bills doesn't have to involve life-changing adjustments," said Scherer.

Energy management for all

The contest also raised awareness about how MyMeter can help residents manage their

energy consumption. WHE and Lake Region both offer the free, web-based tool to help members track the spikes and valleys in their daily use and make adjustments that can reduce their utility bills. Users can customize the program to alert them when their energy use is about to pass a pre-set level. They can also add markers for individual appliances to see how much operating each one costs. "The number of members who use MyMeter has been growing steadily since we introduced it in 2008," Scherer said.

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‘Littlest User’ *from page 1*

Several co-ops have adopted MyMeter, designed by Accelerated Innovations, and it was at a user meeting last fall that the idea for the “Littlest User” surfaced. In the spirit of competition, WHE and Lake Region both claim that they were the first to rise to the challenge.

Building the team

The cooperatives recruited their teams of six families by calling for volunteers in monthly newsletters. There was no need for WHE to draft participants: three member employees volunteered their homes, and the rest of the member-consumer families stepped forward to join the contest.

In addition to signing up for MyMeter, the families each received a Kill-a-Watt power meter, which measures how much energy appliances are using, and a thermal leak detector to help them monitor their energy use throughout the competition. Energy use consultants from WHE did a walk-through with each of its family teams before

the contest started to look for energy-saving opportunities and offer advice. The team could also call on the consultants for guidance throughout the contest.

One important rule for the Littlest Users was that no family could spend more than \$200 on energy-saving measures. “We wanted the focus to be on the simple steps any family can take,” explained Scherer.

Let the games begin!

Equipped with easy-to-use technology, conservation tips and the will to win, the Watt Watchers and MiniMizers sprung into action April 1.

It started with the obvious changes: replacing conventional lights with compact fluorescent bulbs, cutting down on the number of lights when fewer would do the job, and of course, turning off the light when leaving a room. Contestants put their Kill-a-Watts to good use and unplugged appliances that weren’t critical. Clothes lines sprang up in doorways before summer and in backyards as the weather grew warmer. “We discovered the clothes dryer was not our friend,” commented one entrant.


The contestants were soon seeking out new ways to cut down on energy use. One contestant decided that she could save energy by waiting until her hair was half dry before blow drying it. Another family took to grilling more meals on the outdoor barbecue. Several teams discovered that saving energy could bring families closer: playing board games uses less electricity

than playing video games, watching TV or using the computer.

Everybody wins

By the end of four months, such small, inexpensive changes produced a dramatic difference in the contestants’ household energy consumption. The Wright-Hennepin Watt Watchers triumphed, reducing their use by almost 43 percent over the previous year, while the Lake Region MiniMizers were able to shave their use by 9.34 percent.

The individual differences were even more impressive. The LeFevre family, who took home the grand prize of a month of free electricity, cut their energy use by 58 percent. Other Watt Watchers’ savings ranged from 20 percent to 53 percent. The Meter Mizers, Lake Region’s star team, used 20 percent less energy. Those accomplishments come with more than bragging rights, added Scherer. “One family saved more than \$1,000 during the contest,” she said.

Best of all for the participants, they realized that it won’t be hard to maintain their savings. A new keen awareness of their own energy use habits will make it harder to slip back to their old ways. Most contestants noted that saving was easier than they thought, or as one put it, “It just shows how wasteful we were being before the contest.” 

Energy Services Bulletin

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Heartland energy makeover contest educates by example

To educate their customer systems and consumers about modern energy-efficiency strategies, Heartland Consumers Power District sponsored Extreme Energy Makeovers in 2009 and 2010, targeted at both homeowners and communities.

The contests introduced the South Dakota-based power wholesaler's new Power Forward energy-efficiency program. "We thought the energy makeovers would make a great promotional tool," explained Heartland Communications Manager Ann Hyland. "It gave our customer utilities examples they could point to when their consumers asked about building improvements. They could say, 'this was done; this is what it cost; this is how much money the measure saved.'"

Customer communities got in on the savings, too, with a municipal version of Extreme Energy Makeover in 2010. Heartland offered two cities in South Dakota and two in Minnesota up to \$20,000 to make improvements to public buildings such as the city hall, local community center or fire hall.

Home improvements

The Extreme Energy Makeover was a good fit to demonstrate the benefits of the whole-house approach to energy efficiency. Most of the houses in Heartland's service territory were built before 1980, so many had older windows, appliances, heating and cooling systems and inadequate insulation. Improving just one of those items helps, but greater energy savings come from treating the house as a system—up to 30 percent, research has shown.

To enter the makeover contest, applicants submitted their utility bills. Based on their energy use, three



An Energy Star-qualified electric heat pump is one of the measures that helped reduce the Schmidt family's monthly energy use by an average of almost 32 percent. (Photo by Heartland Consumers Power District)

finalists were chosen to receive home energy audits.

Heartland partnered with the local community action partnership to perform the audits and make recommendations to all the homeowners. The house with the greatest potential for energy savings won the makeover. "That was really the only criteria for selection," said Hyland.

The improvements on the first makeover home included insulating the basement and attic, installing a programmable thermostat and compact fluorescent lights, and replacing the natural gas furnace and water heater with an electric heat-pump system and super-efficient

electric Marathon water heater. Both homes received new Energy Star windows as well—usually not the most cost-effective improvement, Hyland noted. "But in this case, the windows really made a difference."

The Schmidt family, who won the 2009 residential makeover, reduced their monthly energy use by an average of almost 32 percent. Heartland is collecting a year's worth of billing data before analyzing the results of the 2010 makeover, but Hyland is confident that the Lake Crystal homeowners are seeing big differences in their energy bills.

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Heartland *from page 3*

Engaging communities

The process of choosing communities to receive an energy makeover was simpler than the residential contest: Customer city names were drawn from a hat at Heartland's annual Economic Development Invitational. The assumption was that every municipality has energy-efficiency savings waiting to be captured with a little help.

And they did: Insulation improvements in Tyndall, S.D.'s finance office and city shop building cut their energy use by 35,518 kWh annually, or about \$2,841 per year. An upgrade to the lighting in the city library is saving an estimated 1,281 kWh/year and 5.16 kW/month. Heartland estimates that replacing two doors and a picture window, and upgrading lighting in Tyndall's senior center is reducing energy use by 4,415 kWh/year and 1.26 kW/month.

The city of New Ulm, Minn., used its makeover money to make major improvements on its wastewater treatment plant for an estimated annual savings of 1 million kWh. LED and T-8 lighting upgrades and other improvements are saving Colman, S.D. an estimated 13,672 kWh/year and 22.55 kW/month. An energy makeover of the Lake Crystal, Minn., city hall included window replacements, increased insulation, lighting upgrades and installation of high-efficiency heating and air conditioning

systems. These improvements will save the city an estimated total of 7,435 kWh annually—great news for the taxpayers.

Heartland's resource manager Adam Graff worked closely with city staff to pick projects that were a good investment. That didn't mean sticking to a specific payback period, however. "We looked at improvements case by case," stated Hyland. "Sometimes, you have to have flexibility to get the best results."

Another aspect both makeovers shared was that Heartland encouraged the use of local contractors. Winners could recommend contractors they knew, which helped them feel confident about the work being done in their homes and buildings and kept the ancillary benefits of energy efficiency local. "That's probably easier to do in small towns," Hyland acknowledged.

Intended, unintended learning

The Power Forward program has evolved into new areas, but lessons learned from the Extreme Energy Makeover contest will stay with Heartland.

One surprise was the low number of applicants for the first

contest, and the reason was even more unexpected. "People told us that the makeover sounded too good to be true, so they didn't trust it," Hyland recalled with some surprise. "We didn't see that one coming, and we had to adjust for that perception in promoting the second contest."

More expected was the push-back about the home selection process. Some consumers felt that personal need should have been part of the consideration, even though Heartland acknowledged up front that potential energy savings was the only criteria. Hyland admitted that some contention is unavoidable in such contests, and utilities have to be prepared to handle it. "The good thing about managing the makeover at the power wholesaler level is that we could take that flack for our customers," she said.

The makeover also prepared Heartland and its customers to deal with their consumers' heightened awareness about energy-efficiency measures. "It really helps to have that experience with building improvements to answer the inquiries we get now," said Hyland. ⚡

Have a success story?

Share it with the Energy Services Bulletin!

Contact the editor at 720-962-7508 or storie@wapa.gov

For links to more resources,
visit <http://www2.wapa.gov/sites/western/es/pubs/esb/Pages/esb2.aspx>

Webinars bring learning opportunities to you

Fall is a great time to update your skills or acquire new ones, especially if you don't have to leave the office to do it. Check out these upcoming webinars covering topics from industrial efficiency to geothermal development.

Energy efficiency

The Tuesday webinar series, offered by the Department of Energy's Industrial Technology Program, is a great place to pick up ideas for helping your commercial and industrial customers. "Making Energy Efficiency a Part of the Corporate Culture" is the Nov. 8 online event. Learn how Nissan America successfully cultivated and promoted a corporate culture of energy efficiency built on an employee-driven energy management system and employee engagement.

On Dec. 13, the subject is "Regional Energy-efficiency Programs" and how industrial manufacturers can use local organizations to help them get control of their energy consumption. The hour-long Tuesday webinars begin at 1:00 p.m. Central Time. There is no charge, but space is limited so register early.

Perhaps your agricultural customers are in need of an energy tune-up; in that case, the webinar for you is "Saving Energy on Farms and Ranches." This event offers strategies to help customers who are struggling to continue living and working with the land. The latest in Clean Energy Ambassadors' Tuesday lunch-time webinar series is also Nov. 8, but begins at noon CT so you don't have to choose.

Dealing with downturn

An issue dogging all utilities in today's economy is the subject of the Dec. 13 webinar, "Answering Concerns about Sinking Utility Revenues." The discussion will center on ways to manage a tighter ship and to generate utility revenue through energy efficiency and renewable energy. Participation in all Clean Energy Ambassador webinars is free.

For another perspective on the same concern, American Public Power Association will present "Coping with Financial Challenges during Periods of Declining Sales" Nov. 30. Speakers will discuss financial policies and rate structures that help utilities weather difficult times. Learn about industry trends and utility strategies that promote financial stability. The webinar is scheduled for 1 to 2:30 p.m. CT and costs \$89 for APPA members or \$179 for non-members.

Renewable energy

There is always something new to learn in the renewable energy industry, and plenty of opportunities are coming your way in November and December. DOE's Wind Powering America program presents "Wind and Wildlife Interactions," at 2 p.m. CT Nov. 16. There is no cost, and registration is not required.

If utility-scale solar development is in your future, or at least in your thoughts, join the Solar Electric Power Association Nov. 17 for "Case Study: Tucson Electric Power on the Role of Utilities in Solar Project Development." Hear about Tucson Electric's development

of a 20-megawatt photovoltaic project and learn from the utility's experiences.

As municipalities hammer out their building code requirements for solar installations, it is critical to address potential safety design issues that could hinder adoption of the systems in the United States. On Dec. 15, SEPA will present "Commercial Rooftop PV Fires: Lessons Learned and Prevention with Ground-Fault Design and Codes." This webinar will examine the causes of several rooftop fires and describe follow-up research and prevention measures. The discussion on fire risks of faults and fault currents will draw on a recent report from the Solar America Board of Codes and Standards.

Find out more about the challenges of adding base-load renewable generation to your power mix Nov. 16 with "Exploration and Geothermal Power Development: Navopache Electric Cooperative Experience." The Department of Energy's Geothermal Technologies Program is teaming up with Western to offer this free 1-hour online event.

These webinars are just a sample of the educational opportunities available to utility professionals. Check the monthly calendar in the Energy Services Bulletin and visit the Energy Experts calendar for more frequent updates. You can also add your events to the Energy Experts calendar, and submit event information to the Energy Services Bulletin editor. ⚡

For links to more resources,
visit <http://www2.wapa.gov/sites/western/es/pubs/esb/Pages/esb3.aspx>



Energy Experts answer real questions from utilities about energy-saving programs, technologies and measures. Ask a technical question online, or call the Energy Experts Hotline at 800-769-3756.

Question:

Our city wants to purchase light-emitting diode (LED) lights to replace its incandescent holiday lighting. Our current display contains 87,000 feet of lighting, draws about 132 kW, and uses 140 megawatt-hours over the season. What should we know when selecting LEDs?

Answer:

LEDs certainly have the potential to save municipalities a lot in operating costs as well as product breakage and replacement costs. It's smart to start shopping well ahead of the holidays as these lights are getting much more popular with each passing year (both for energy costs as well as appearance and durability) and can sell out early. Consider the following factors before you buy:

Technology, durability

Commercial grade lighting, with special connectors and heavier wiring, is now widely available. The special connections allow up to 150 LED strings to be connected; otherwise UL listings only allow three strings to be connected. The three-string mandate is based on traditional incandescent lamps. Because LEDs draw much less energy, it is likely that more strings could be connected safely.

However, until the UL listing for standard-plug-connected LED sets is changed, it is best to follow the current regulations.

The wiring tends to be the weakest link in the system and should be treated carefully. Seasonal products are not meant to be left in place year around—UV exposure and other elements can shorten the life of the product.

Appearance, other features

New shapes, colors and brightness seem to come out each year so you may want to start by selecting some specific features to see how the product performs and how well warranty issues are handled. Pre-lit LED artificial trees, LED rope lighting and sculpture lighting are applications that may interest your city, and the variety available increases annually.

With regard to bulb size, be aware of the size of the LED inside the lens, and ask for some samples to view before making a large purchase.

Remember that the color of the LED lamp is not a result of a colored reflector but of the materials used to manufacture the lamp. This means that in a single-color string—blue for example—the lights may not all be an identical shade of blue. More expensive light sets may closely match colors, while the bulk-purchased “blue” lights in less expensive sets could be noticeably different from one another. It is a good idea to confirm how much difference your supplier tolerates in matching their lamps.

Keep in mind the very different

appearance of incandescent and LED lamps—mix with caution. Last year, we saw a large Christmas tree at a California shopping center that appeared at first sight to be lit with blue and yellow lamps. Closer inspection found that it was a mix of incandescent “clear” lights and “white” LED lamps. The mall staff said they used incandescent lamps to get more “sparkle” and added that they thought the LEDs were wonderful and planned to use them again. They weren't tracking the display's energy use, so they were unaware of how that choice affected the mall's electricity bill.

Ready to purchase?

It is hard to quote prices, since most companies post retail prices online and are willing to negotiate for bulk sales. Your best bet is to have a specific product in mind and get quotes from several distributors.

If you want continuity throughout the season, consider purchasing a few back up strings in case some fail in the same year and the vendor is sold out of that model. At least one company sells LED lamps that replace incandescent screw-in lamps, but they are costly and don't allow for more than three strings to be connected.

LED lamp-life claims typically range from 25,000 to 200,000 hours, a variance that is due to a couple factors. There is still debate going on in professional circles about when an LED has reached its lamp life. The light output declines over time so at some point, though the lamp is

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Website of the month:

Implementing energy-efficient lighting standards

The phasing out of inefficient old light bulb technology under the bipartisan Energy Independence and Security Act of 2007 (EISA 2007) begins in 2012, bringing with it consumer savings of up to \$50 per month and national savings of \$12.5 billion annually when fully implemented in 2020.

Of course, even a positive change in something that is so necessary and ubiquitous in our lives can make people uneasy. Utilities have the opportunity to build relationships with their customers by answering their questions and easing them through the transition. Here are some web resources to help you and your consumers cut through the confusion to reap energy savings.

Change is a process

To get a better grip on what the new choices mean to lighting consumers (that's all of us), start with Energy Savers. The home page sums it up nicely with the headline, "Lighting choices save you money," and follows up with a two-minute video introduction to the new lighting standards and bulb options.

Further down the page are a short description of each option and links to more information for consumers, retailers and the media. Since there are still a lot of myths and misunderstandings about EISA 2007, even within the electricity industry, encourage all utility staff to read about the new standards. For those whose jobs require more in-depth knowledge, Lighting Design Lab's fall 2011 issue



The new efficiency standards mandate that light bulbs use 25 percent less energy to produce the same amount of light—a win for consumers, power providers and the nation. (Photo by DOE Office of Energy Efficiency and Renewable Energy)

has a great story, *How Can I Miss You if You Won't Go Away?* The Truth about EISA 2007. Customer service representatives may want to bookmark Energy Savers' list of Frequently Asked Questions so they can be ready with answers for concerned callers.

A new language

A critical part of lighting education is giving consumers a benchmark they can use to select the right product for their needs. People used to know from experience how much light to expect from a 40-, 60- or 100-watt bulb, but that metric no longer applies to lamps that deliver the same amount of light using fewer watts.

Lumens—the measure of brightness—are the new currency. The Federal Trade Commission (FTC) has created a handy chart that translates watts into lumens so shoppers can compare "apples to apples." Reprint the lumen chart on good card stock or a refrigerator magnet for a great promotional item your customers will keep around for the next few years.

Brightness is not the only factor that affects lighting choices, so all

bulb packages will soon display a Lighting Information Label. Similar to the nutrition label on food packages, this label lists annual energy use, bulb life and light appearance in addition to number of lumens.

Know your stuff

Even utilities that already have established lighting programs need to stay up to date with the rapidly changing technology to be able to offer their customers the best options. Clean Energy Ambassadors is hosting a special webinar Nov. 1, *Lighting Efficiency Standards: An Update and Review of Current Issues*, noon to 1 PM, Central Time. This webinar is for regulators, advocates and others who need to know the best current thinking regarding the implications of the lighting efficiency standards.

Lighting Design Lab targets the Northwest lighting market with classes and technical assistance, but the website offers some great resources for program managers outside their territory. Check out programs developed by utility members for ideas to use in your area. The library offers lighting

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Website of the month *from page 6*

catalogs, ballast lists and downloads of newsletters and reference materials. Browse the articles to brush up on everything from lighting basics to esoteric topics like lighting and productivity.

There is a great deal to know about lighting, and people dedicate entire careers to studying, designing and creating it. As a utility program manager, you

may only need a few good fact sheets to debunk the myths and misunderstandings that have been swirling around the new standards. Here are some good references:

- Dispelling Myths about the Federal Light Bulb Standard – Midwest Energy Efficiency Alliance

- Lighting Myths and Facts – Energy Savers
- New Lighting Standards – New York State Energy Research and Development Authority

Does your utility have a plan for educating consumers about the new light bulb standards? Share it with Energy Services Bulletin. ⚡

For links to more resources,
visit <http://www2.wapa.gov/sites/western/es/pubs/esb/Pages/esb5.aspx>

Ask the Energy Experts *from page 6*

technically lit, it is not providing the same effect as intended in the beginning. Optimists seem to claim very high lamp life, while more conservative companies such as Philips opt for the lower numbers. A reasonable estimate for LED lamp life is around 50,000 hours, but the debate continues.

We cannot recommend products but an Internet search for commercial-grade LED holiday or Christmas lights will provide plenty of options. Narrow your search by including “ENERGY STAR” in your search terms. Visit Energy Star light strings for more news and resources.

Contacting the seller and directly discussing which product they use (Forever Bright came out first), how they handle warranties and return policies and pricing is the best approach. Get any

warranties and procedures and limitations in writing. The Federal Trade Commission offers some advice for shopping online.

Communities using LEDs

Here are some other communities and organizations using LEDs in their holiday displays:

- Downtown Golden Holiday Lights; Golden, Colo. (94K pdf) – Results of research the Golden Urban Renewal Authority did to see what other cities were doing on

holiday lighting planning and budgeting. Most include what they are doing to move towards LED lights. Contacts are included for each project.

- Oregon ZooLights; Portland, Ore.
- Point Defiance Zoolights; Tacoma, Wash.

For more information on both residential and commercial holiday lighting, see the newly updated Energy Services 2011 Holiday Lighting fact sheet. ⚡

Download the 2011 Holiday Lighting fact sheet at <http://www2.wapa.gov/sites/western/es/pubs/Documents/holidayLighting11.pdf>

or contact Energy Services, 720-962-7508,
to get the version with room for your logo.

For links to more resources,
visit <http://www2.wapa.gov/sites/western/es/pubs/esb/Pages/esb4.aspx>